



6. EXCAVATION AND CONFIRMATION PROGRAM

This section presents the activities and results of the soil excavation and confirmation program implemented in Parcel D for removal of arsenic impacted soil. As discussed in Section 5, a single elevated arsenic concentration was detected in the top sample (6-inch depth) collected from boring B-3 during the Parcel D investigation. Following the collection of delineation samples as described in Section 5, total arsenic was identified at concentrations above background (14 mg/kg) over an area measuring approximately 400 by 200 feet, to a depth of 1.5 feet bgs with four isolated areas extending to 2.5 feet bgs (see Figure 5-1 in Section 5). However, at the completion of the excavation activities, approximately 8,200 cubic yards of arsenic-impacted soil were removed from an area measuring approximately 400 by 300 feet, to depths between 1.5 and 2.5 feet bgs.

6.1 SOIL EXCAVATION AND OFF-SITE DISPOSAL

Approximately 8,200 cubic yards of arsenic-impacted soil were excavated, transported, and disposed at approved off-site facilities. The following sections present the procedures used to ensure that all arsenic-impacted soil, defined as soil exhibiting total arsenic concentrations greater than 14 mg/kg, was excavated and properly disposed.

6.1.1 Excavation and Confirmation Sampling

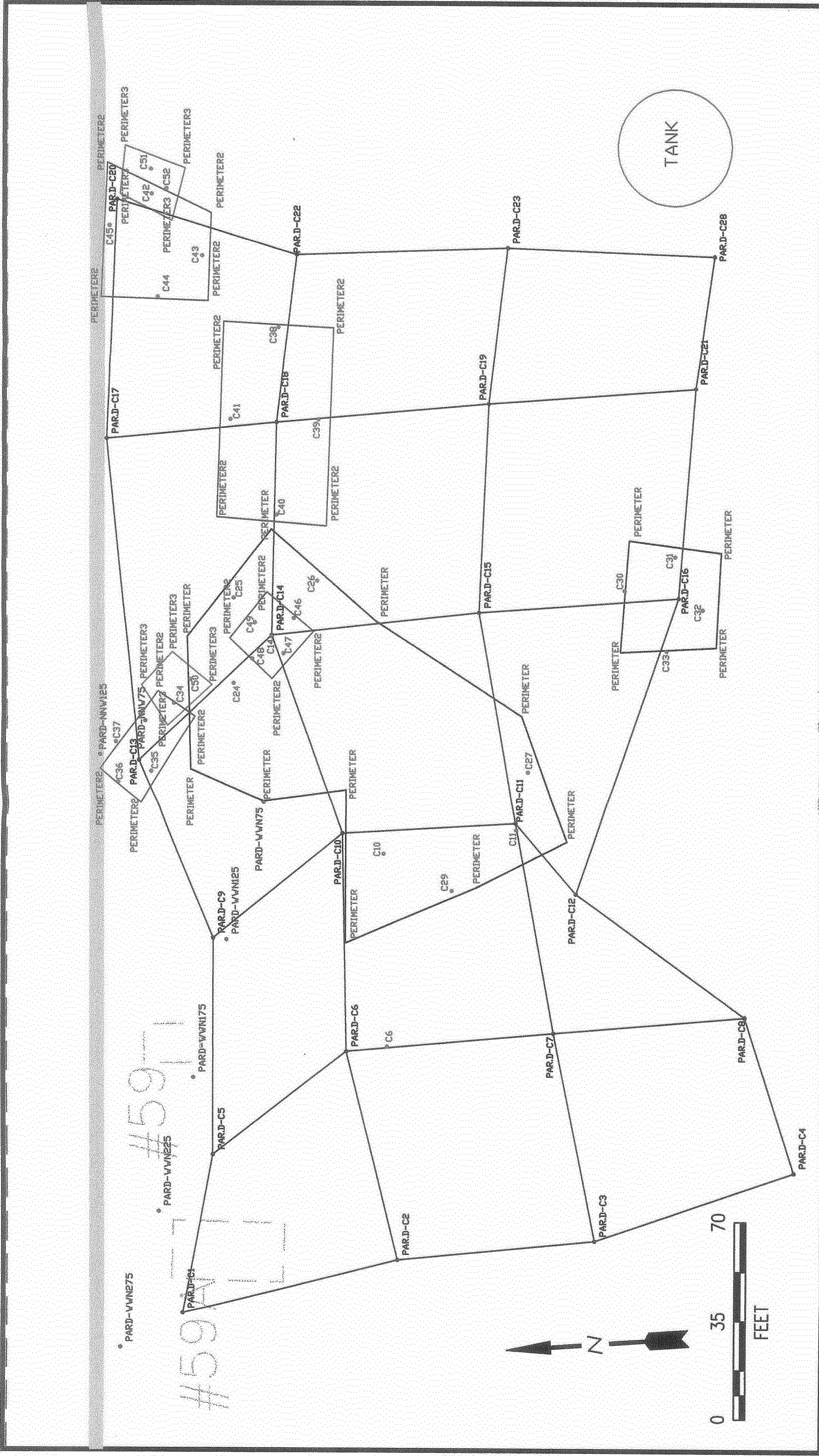
The arsenic-impacted soil excavation was conducted following the procedures outlined in the approved Parcel D Excavation Plan (IESI 1999a and d). Prior to the excavation, an approximately eight-inch-thick layer of pulverized asphalt and base was removed and stockpiled for use as backfill for the construction of the new Francisco Street. A sample of this material exhibited a total arsenic concentration of 14 mg/kg (see Table E-1 in Appendix E).



Excavation was performed in a phased approach beginning with isolated excavations, followed by an overall area excavation. Within the arsenic-impacted area, 13 locations (referred to as Pits 1 through 13) were identified as requiring isolated excavations because either: 1) the arsenic concentration exceeded the total threshold limit concentration (TTLC) of 500 mg/kg or soluble threshold limit concentration (STLC) limit of 5 mg/kg or 2) arsenic was present at a concentration greater than 14 mg/kg at depths below 2 feet bgs. Ten of the thirteen isolated locations (Pits 1 through 6, 8, 9, 12, and 13) were identified as exhibiting non-RCRA hazardous soil while the remaining three locations (Pits 7, 10, and 11) exhibited nonhazardous arsenic levels (greater than 14 mg/kg but below the TTLC and STLC threshold limits) at depths below 2 feet bgs. Isolated excavations were conducted using a backhoe.

Upon completion of each isolated excavation, confirmation samples were collected to verify that the concentrations in the remaining soil were below the arsenic STLC and TTLC limits and therefore meet the criteria for non-hazardous waste. Samples were collected from the bottom and each side wall. The bottoms were excavated until the total arsenic concentrations were below 14 mg/kg (see Table 6-2), and the side walls were excavated to concentrations below the STLC. The concentrations in the side-wall samples only had to be below the STLC during the isolated excavations to minimize the amount of non-RCRA hazardous generated. The remaining soil was removed with the overall removal of the top 1.5 feet (discussed below). The locations of isolated excavations are presented in Figure 6-1. Confirmation sampling data for these excavations are presented in Table E-1 in Appendix E.

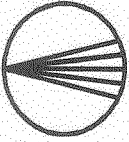
Although several of the confirmation sample results exceed 10 times the STLC threshold limit, none were analyzed for STLC because the STLC data collected on 52 samples (refer to Table 5-5 in Section 5) shows that the majority of the samples with concentrations exceeding the STLC limit of 5 mg/l have TTLC concentrations greater than 200 mg/kg. As a conservative approach, soil exhibiting greater than 100 mg/kg on the side walls and bottoms of the isolated excavation pits were excavated for disposal at a Class I landfill.



TITLE:

Parcel D Arsenic Excavation Confirmation Sampling Locations
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PROJECT NO.:

BOC6\PDSIR

DWN: JDL

DES.: JDL

FIGURE NO.:

6-3

APPD: JPO

CHK: JFH

REV: 1

DATE: 09/20/99



Arsenic-impacted soil was deemed confined to the top 1.5 feet within the delineated area. Once the isolated excavations were completed and confirmed, excavation of the remaining arsenic-impacted soil was conducted using a front-loader and paddle-wheel scraper. Figure 6-2 shows the overall arsenic excavation area.

During excavation, the soil was separated into two isolated stockpiles for disposal. One stockpile represented non-RCRA hazardous waste to be disposed at a Class I landfill while the other represented non-hazardous waste to be disposed at a Class III landfill. As discussed in Section 5, the soil disposed at a Class I landfill exhibited arsenic concentrations above the TTLC of 500 mg/kg or the STLC of 5 mg/l. This soil was disposed of at Kettleman Hills Landfill in Kettleman City, California. The soil disposed of at a Class III landfill exhibited arsenic concentrations above the background concentration of 14 mg/kg, but below the TTLC and STLC. This soil was taken to Bradley Landfill in Sun Valley, California, and used as daily cover (see Section 6.1.3).

Table 6-1 presents a summary of the types of material and estimated quantities excavated, and the facility to which these soils were transported for disposal.

TABLE 6-1
TYPES AND QUANTITIES OF EXCAVATED SOIL

Soil Type	Approximate Quantity (cubic yards)	Final Place of Disposition
Non-RCRA hazardous waste	42	Class I Landfill (Kettleman Hills)
Non-hazardous waste	8,200	Class III Landfill (Bradley Landfill)